WO 2005/042719 PCT/US2004/036200

What is claimed:

1. A method of inhibiting Fas-protein regulated apoptosis in a cell comprising administering to the cell a short interfereing RNA (siRNA) which modulates Fas-protein encoding gene expression, thereby inhibiting apoptosis in the cell.

- 2. The method of claim 1, wherein the cell is a kidney cell.
- 3. The method of claim 2, wherein said kidney cell is a tubular cell.
- 4. The method of claim 1, wherein said cell is a cardiac cell.
- 5. A method of treating or preventing ischemia-reperfusion injury in a subject comprising administering to said subject a therapeutically or prophylactically effective amount of an RNA interfering agent which inhibits Fas-protein encoding gene expression such that ischemia-reperfusion injury is treated or prevented.
- 6. The method of claim 1 or 5, wherein said RNA interfering agent is a double-stranded, short interfering RNA (siRNA).
- 7. The method of claim 6, wherein said siRNA is about 15 nucleotides to about 28 nucleotides in length.
- 8. The method of claim 6, wherein said siRNA is about 19 nucleotides to about 25 nucleotides in length.
- 9. The method of claim 6, wherein said siRNA is about 21 nucleotides in length.
- 10. The method of claim 6, wherein said siRNA is double stranded and contains a 3' overhang on each strand.
- 11. The method of claim 10, wherein said overhang comprises about 1 to about 6 nucleotides on each strand.

WO 2005/042719 PCT/US2004/036200

12. The method of claim 10, wherein said overhang comprises about 2 nucleotides on each strand.

- 13. The method of claim 6, wherein said first strand comprises the sequence of SEQ ID NO:13 and said second strand comprises the sequence of SEQ ID NO:14.
- 14. The method of claim 5, further comprising a pharmaceutically acceptable carrier.
- 15. The method of claim 5, wherein ischemia-reperfusion injury affects any of the organs selected from the group consisting of kidney, heart, brain, liver, gut and lung.
- 16. The method of claim 5, wherein said subject is a human.
- 17. The method of claim 5, wherein said siRNA is administered intravenously.
- 18. The method of claim 17, wherein said siRNA is administered by repeated intravenous injection.
- 19. A method of preventing ischemia reperfusion injury in an organ in an individual at risk of ischemia reperfusion injury comprising administering to a blood vessel of the organ one or more siRNAs targeting human Fas protein and a pharmaceutically acceptable carrier, wherein the one or more siRNAs targeting human Fas protein inhibits Fas-protein expression in cells of the organ thereby inhibiting Fas-protein mediated apoptosis in the organ and preventing ischemia reperfusion injury in the organ.
- 20. The method of claim 19, wherein the sequence of one or more siRNAs targeting human Fas protein comprises a nucleic acid selected from the group consisting of SEQ ID NO: 15, SEQ ID NO: 16, SEQ ID NO: 17 and SEQ ID NO: 18.
- 21. The method of claim 19, wherein the organ is kidney.

WO 2005/042719 PCT/US2004/036200

22. The method of claim 19, wherein the individual in need of is an organ transplant donor or organ transplant recipient.

- 23. A method of inhibiting Fas-protein mediated apoptosis in an organ in an individual in need thereof comprising administering to a blood vessel of an organ one or more siRNAs comprising a nucleic acid sequence targeting a sequence selected from the group consisting of SEQ ID NO: 15, SEQ ID NO: 16, SEQ ID NO: 17 and SEQ ID NO: 18 and a pharmaceutically acceptable carrier, wherein the siRNA inhibits Fas-protein expression in cells of the organ thereby inhibiting Fas-protein mediated apoptosis in the organ.
- 24. The claim of 23, wherein the organ is kidney.
- 25. The claim of claim 23, wherein the individual in need of is either organ donor or organ recipient.